



WORLD DISTRIBUTION OF POLIOMYELITIS

1900 - 1950

Discussion of the Sources

THIS MAP is based on a number of sources that differ in reliability and precision. We distinguish: facts and figures issued by international or national agencies; facts and/or figures originating in the books, published papers, and recorded statements of individual authors.

International and national agencies publish figures which we have accepted as the most reliable available at the present time. They are seldom, if ever, qualified by explanatory statements. They do not, and cannot, pretend to represent the whole truth as it exists in nature, but are limited to facts as they have been reported. The reader must use his own judgment as to their reliability, bearing in mind the medical facilities for survey, diagnosis, and notification that may be presumed to exist in various countries.

Individual authors publish both figures and qualifying statements, or sometimes statements without figures. In the first case the facts reported usually apply to a limited area and enough information is given to help interpret the figures accurately. In the second case the statements may be accepted as they stand if their author is well known and accredited.



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Example: "Infantile paralysis exists in endemic form in all of the 21 states of Brazil." Or, "Minor epidemics were reported in Piahy in 1943." (Dr. O. P. Campos, Official Delegate from Brazil at the First International Poliomyelitis Conference.) No figures are given. We assume that the author of the statement has taken into consideration the demography of the region before using the word "epidemic."

No information has been available from Russia since 1927; no answer to our questionnaire has been received.

With these qualifications in mind the reader may use the map and refer to the sources listed below for an explanation of any statement made on the map.

The principal populated areas of the world have been shown by a generalized outline.

Abbreviations

DH	Department of Health
DHW	Department of Health and Welfare
DMS	Director of Medical Services
DPH	Department of Public Health
MH	Ministry of Health
MSP	Ministerio de Salud Pública y Asistencia Social
Q	Questionnaire sent by the American Geographical Society
AER	Annual Epidemiological Report, League of Nations Health Organization for the Year 1932, 1936, 1938.
EVSR	Epidemiological and Vital Statistics Report, United Nations.
ICTMM	Proceedings of the Fourth International Congresses on Tropical Medicine and Malaria, (1948), Dept. of State, Wash., D. C., 1.
MER	Monthly Epidemiological Report and Weekly Epidemiological Record, United Nations and League of Nations.
PASB	Pan American Sanitary Bureau, Monthly Epidemiological Reports.
PB	International Poliomyelitis Congress, Poliomyelitis, Papers and Discussions, (1949), J. B. Lippincott Co., Phila.
PHR	United States Health Service, Public Health Reports.

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PSC	Proceedings of the Sixth Pacific Science Congress of the Pacific Science Association, (1942), U. of California Press, Berkeley, 5.
TB MED	War Department Technical Bulletin, War Department, Wash., D. C.
VDM	Van Rooyen, C. E., and Rhodes, A. J. (1948), <i>Virus Diseases of Man</i> , Thomas Nelson and Sons, New York.

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AER	
ALASKA	
Q Alaska DH, Juneau	
AER	
Hayes, M., <i>PSC</i> , 470	
Paul, J. R. (1949), <i>Preliminary Report of Expedition to Point Barrow, Alaska</i> , (unpublished)	
ALGERIA	
EVSR	
ANGOLA	
Q Direcção dos Serviços de Saúde e Higiene, Luanda	
EVSR	
ARGENTINA	
EVSR	
PASB	
TB MED 235, 32	
<i>Bol. Ofic. san. panam.</i> , (1943), 22, 770	
Bustamente, G. B. (1944), <i>Bol. Ofic. san. panam.</i> , 23, 586	
Candiotti, C. V., <i>PB</i> , 327	
Dauer, C. C. (1947), <i>PHR</i> , 62, 901	
Maggi, R. (1945), <i>Rev. Assoc. méd. argent.</i> , 59, 302	
AUSTRALIA	
Q Commonwealth Bureau of Census and Statistics, Canberra	
DPH, Perth	
AER	

4

EVSR	
MER LN (1934), no. 1 - 2, 16	
PHR	
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AER	
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PHR	
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AER	
MER LN (1934), no. 1-2, 16	
BASUTOLAND	
Q DMS, Maseru	
BECHUANALAND	
Q DMS, Mafeking	
BELGIAN CONGO	
EVSR	
MER LN (1935), no. 10-12, 223	

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BELGIUM
Q Institut National de Statistique, Brussels
EVS
Comby, J. (1930), *Arch. de méd. d. enf.*, 33, 683
Lancet (1945), 2, 440
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BERMUDA
AER

BILLITON ISLAND
PHR, (1948), 63, 1532

BOLIVIA
EVS
PASB

BRAZIL
Q Departamento Nacional de Saúde, Rio de Janeiro
EVS
PASB
Campos, O. E., PB, 40, 328
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BRITISH GUIANA
EVS
PASB

BRITISH HONDURAS
PASB

BRITISH SOMALILAND
AER

BULGARIA
EVS
TB MED 58
Lancet (1945), 2, 440

BURMA
Q Director of Medical and Public Health Services, Rangoon
TB MED 77
Min Sein, PB, 329

CANADA
Q DHW, Charlottetown
DHW, Victoria
Dominion Bureau of Statistics, Ottawa
DPH, Halifax

DPH, Regina
MH, Quebec

AER
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PASB
PHR
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TB MED 192

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CELEBES
AER

CEYLON
Q Registrar General's Office, Colombo
PHR

CHILE
EVS
PASB
PHR
Romero, H., PB, 331

CHINA
TB MED 171, 220
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COLOMBIA
Q Ministerio de higiene, Bogotá

PASB
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COSTA RICA
EVS
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CUBA
Q Ministerio de Salubridad y Asistencia Social, Havana
AER
EVS
PASB
PHR
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CURACÃO
EVS
PASB
Van Creveld, S., PB, 43

CYPRUS
Q Director of Medical and Health Department, Nicosia
EVS

CZECHOSLOVAKIA
EVS
TB MED 107

DAHOMEY
EVS

DENMARK
Q Sundhedsstyrelsen, Copenhagen
EVS
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DOMINICA
AER

DOMINICAN REPUBLIC
EVS

ECUADOR
EVS
PASB

EGYPT
Q Statistical Department, Cairo
TB MED 214
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ESTONIA
AER

ETHIOPIA
EVS

FAROE ISLANDS
AER

FIJI ISLANDS
AER

FINLAND
Q Central Office of Statistics of Finland, Helsinki
AER

TB MED 27
EVS
TB MED 66
Kaprio, L. A., PB, 336

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FRENCH CAMEROONS
Q Directeur de la Santé Publique, Yaoundé
AER
EVS

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GERMANY
Q Chief of Preventive Medicine Branch of the Medical Division, U. S. Zone
AER
EVS
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GOLD COAST
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GREECE
 AER
 EVSR
 PHR
 TB MED 26

GREENLAND
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GUATEMALA
 EVSR

PASB
 HAINAN
 TB MED 118

HAITI
 AER

HAWAII
 Q DH, Honolulu
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 Enright, J. R., *PB*, 49
 Lee, R. K. E. (1941), *PHR*, 56, 1556
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 Paul, J. R. (1947 a), *Am. J. Hyg.*, 45, 206

HONDURAS
 EVSR
 PASB

HUNGARY
 Q Hungarian Central Statistical Office, Budapest
 EVSR
 MER LN (1931), 11, 7
 PHR
 TB MED 140
Acta path. et microbiol. Scandinav., Suppl., 68
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 Fritz, S. (1912), Gyermekorvos, Budapest
Lancet (1945), 2, 440
 Petrilla, A. (1936), *Orvosi hetil.*, 13, 288

ICELAND
 Q Landlaeknir, Reykjavik
 AER
 EVSR
 MER LN (1930), 2, 69
 PHR

INDIA
 Q Director, Public Health, Poona
 correspondence, Dr. Nephi K. Kezerian, Children's Hospital
 School, Baltimore, Md. May 26, 1950
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INDOCHINA
 Q Le Conseiller a la Santé Publique,
 AER
 EVSR
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IRAQ
 EVSR
 Witry, H. A., *PB*, 339

IRELAND
 Q DH, Dublin
 EVSR
 PHR
 TB MED 215
 Deeny, J., and MacCormack, J. D. (1946), *Lancet*, 2, 8
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ISRAEL
 EVSR
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ITALY
 Q Istituto Centrale di Statistica, Rome
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 PHR
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IVORY COAST
 AER

JAMAICA
 Q DMS, Kingston
 EVSR
 PASB
 PHR

JAPAN
 EVSR
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 TB MED 160

Paul, J. R. (1947), *Am. J. Hyg.*, 45, 206
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JAVA
 TB MED 102

KASHMIR AND JAMMU
 AER

KENYA
 Q DMS, Nairobi
 EVSR

KOREA
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 AER
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LIBERIA
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 Paralysis

LITHUANIA
 AER
 MER LN, (1935), no. 10-12, 208

LUXEMBOURG
 Q Office de la Statistique Générale, Luxembourg
 EVSR
 PHR

MADAGASCAR
 Q Directeur du Service de Santé, Tananarive
 EVSR
 PHR
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 ———, (1933), *Bull. Soc. path. exot.*, 26, 1118

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 PHR
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MALTA
 Q Office of Statistics, Valletta
 EVSR
 PHR
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 281
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MANCHURIA
 TB MED 216, 47

MARTINIQUE
 AER

MAURITIUS
 Q DMS, Port Louis
 EVSR
 PHR
 Kauntze, W. H. (1946), *Bull. Office internat. d'hyg. pub.*, 38,
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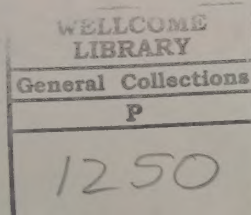
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Age Group Attack Rates

AGE GROUP attack rates have been figured assuming that everybody in a given age group has been exposed to the disease. Figures for attack rates have been computed on the basis of the number of cases per 100,000 in each age group.

The following table indicates whether a single epidemic was considered as a basis for study or a number of epidemics, in which case the mean was computed.

Population figures are given for the corresponding year when known, for the year of the latest census, or computed from the latest census when percentage changes in population were known; in some instances the information is directly reported from the source. These are indicated by the symbol AR.

Abbreviations

* Eleven months only of 1949 treated as figure for the entire year
AR Attack rate
C Cases
CYB The Canada Year Book 1943-4, Dominion Bureau of Statistics, Ottawa
DAUER Dauer, C. C. (1948), *Am. J. Hyg.*, 48, 138
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SAUS Statistical Abstract of the United States 1948. U. S. Dept. of Commerce, Washington, D. C.
UN Demographic Yearbook 1948. United Nations. Lake Success, N. Y., 1949.

Region	Year Considered	Population	Cases or Attack Rates
Argentina	1942-1947	UN	C
Australia	1937	UN	AR
Brazil	1946	UN	C
Canada	1941	CYB	C
Alberta	1941	CYB	C
British Columbia	1944-1948	CYB	AR
Manitoba	1941	CYB	C
Newfoundland	1949	CYB	AR
Northwest Territories (Keewatin)	1948-1949	CYB	AR
Nova Scotia	1941-1949	CYB	AR
Ontario (Hamilton)	1947	CYB	AR
Quebec (Montreal)	1946	CYB	AR
Chile	1928-1947	UN	C
Cuba	1946	UN	C
Denmark	1944	UN	C
England and Wales	1947	UN	C
Egypt	1933-1942	UN	C
Germany (Berlin)	1947	UN	C
Hawaii	1939-1947	UN	C
Ireland	1924	UN	C
Israel	1931-1941	UN	C
Japan	1945-1946	UN	C
Malaya	1942-1943	UN	C
Malta	1942-1943	UN	C

Region	Year Considered	Population	Cases or Attack Rates
Mauritius	1945	SAUS	C
Mexico	1944-1948	SAUS	C
Netherlands	1943	SAUS	C
New Guinea	1936-1937	UN	C
New Zealand	1947	UN	C
Nicaragua	1942	UN	C
Nicarbar Is.	1943	UN	C
Puerto Rico	1945	UN	C
Salvador	1943	UN	C
St. Helena	1945	UN	C
Sweden	1930-1939	UN	C
Switzerland	1944-1945	UN	C
Union of South Africa	1941-1945	UN	C
United States	1941-1945	UN	C
Ala. (white)	1948-1949*	UN	C
Ariz.	1949*	UN	C
Ark.	1946 & 1949*	UN	C
Calif.	1940-1944	UN	C
Conn.	1948	UN	C
Fla.	1943-1946	UN	C
Ga. (white)	1949*	UN	C
Idaho	1949*	UN	C

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Salvador	1943	UN	C
St. Helena	1945	UN	C
Sweden	1930-1939	UN	C
Switzerland	1944-1945	UN	C
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Ariz.	1949*	UN	C
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Conn.	1948	UN	C
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Fla.	1943-1946	UN	C
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Ariz.	1949*	UN	C
Ark.	1946 & 1949*	UN	C
Calif.	1940-1944	UN	C
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Idaho	1949*	UN	C

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United States	1941-1945	UN	C
Ala. (white)	1948-1949*	UN	C
Ariz.	1949*	UN	C
Ark.	1946 & 1949*	UN	C
Calif.	1940-1944	UN	C
Conn.	1948	UN	C
Fla.	1943-1946	UN	C
Ga. (white)	1949*	UN	C
Idaho	1949*	UN	C



EPIDEMIOLOGY OF POLIOMYELITIS

1. There is ample evidence that poliomyelitis has existed all over the world since the beginning of recorded history (Egypt, China). It usually manifested itself by summer cases.

2. Since the beginning of this century outbreaks of epidemic poliomyelitis have been more and more frequently reported. This has coincided with the persistence to depth of sanitary habits and the decrease in size of the average family. Thus a problem arises: Why did poliomyelitis change from an endemic to an epidemic disease?

3. The answer may be found in the study of the changes which have occurred between virus and host during the last 80 years and in the study of correlations between geographical factors and the virus-host relationship. What are the factors that favor sudden increase in the virus virulence and/or decrease resistance in the host?

4. There is no simple test available to permit an early and positive diagnosis of poliomyelitis which in the first stages is always pronounced rather than established.

5. Poliomyelitis may occur in the form of a silent infection or be manifested as sub-clinical forms in which only transient signs and fever are present, forms where some neurological fluid changes can be found, and paralytic cases where the diagnosis is generally obvious and death may result. Any individual infected in any of these ways can spread the virus.

6. The material relation between paralytic and non-paralytic poliomyelitis is unknown, but it is generally accepted that the more responsible forms of the disease are small in number compared to the silent infections.

7. Epidemics have occurred more frequently in the temperate belt but recently they are being reported in increasing numbers from the tropical parts of the world.

8. When epidemics occur in the temperate belt they are confined in the great majority to the late summer and early fall months; exceptions were the Indian epidemic of 1946-1947 and the Australian epidemic of 1951-1952.

9. Although epidemics break out in the summer, cases may continue to be reported through the following winter, or the epidemic may subside to flare up again the following year.

10. There has been a tendency for the age distribution of poliomyelitis to change in the temperate belt in the last 50 years. Percentage of cases and deaths has decreased in the age group under five and increased in the older age groups.

11. When poliomyelitis occurs in "virgin" populations such as in the Nicobar Islands and Chertseff Island, the cases are evenly distributed in the various age groups.

LEGEND

MORBIDITY RATES

When less than 10 cases per 100,000 inhabitants per year are recorded, or prevalence of the disease is reported without statistical notation, the occurrence is indicated by a pink star within the geographical limits of the principal population area. When the rate exceeds 10 cases per 100,000 inhabitants, the peak morbidity rates recorded in each period defined are indicated by ratings or dots of varying weights.

Peak morbidity rates: 10, 10-39, 40-79, 80+

1900-1919: 10, 10-39, 40-79, 80+

1920-1939: 10, 10-39, 40-79, 80+

1940-1949: 10, 10-39, 40-79, 80+

When the rate is less than 10 per 100,000 per year, the number of cases and deaths for the latest available year are given. When the rate is 10 or more, a single epidemic within the period defined is shown by underlining the year of occurrence and by showing, when available, the number of cases and deaths. When several epidemics have been reported within the period defined, the dates and statistics are not indicated.

Example of single epidemic: Call 1939 100% 100%

AGE GROUPS PREDOMINANTLY ATTACKED

under 1 year, 1-4 years, 5-15 years, evenly distributed

EPIDEMICS AMONG MILITARY PERSONNEL WITHOUT SIMULTANEOUS CIVILIAN OUTBREAKS

Morbidity rates: 10-39, 40-79, 80+

EPIDEMICS AMONG MILITARY PERSONNEL COINCIDENT WITH CIVILIAN OUTBREAKS

Morbidity rates: 10-39, 40-79, 80+

NEUTRALIZATION TESTS (LANSING STRAIN) AND PERCENTAGE OF POSITIVE REACTIONS IN SELECTED PLACES

Example: Fiji Islands 1940 100% 100%

Bibliographical References are Listed on Back of Map

Generalized limit of principal population areas
Treaty or de facto boundaries, 1950
Boundary of U.S.S.R., 1927
(Internal boundaries of U.S.S.R. shown for 1927, the date of latest available statistics)



AMERICAN GEOGRAPHICAL SOCIETY OF NEW YORK

